

INDIANA PROJECT WET



State Science Standards Correlation to Activities

Please use the following correlations of the Project WET activities to the Indiana State Science Standards for your planning needs.

Project WET provides workshops throughout the state, and they can be designed to meet your grade level or group needs.

Correlations will be available on line at:

projectwet.in.gov

Questions:

317-562-0788

projectwet@dnr.IN.gov

Indiana Project WET
NREC Fort Harrison State Park
5785 Glenn Road
Indianapolis, IN 46216-1066

NINTH THRU TWELFTH GRADE

SPECIAL THANKS TO:

Project WET correlations to the Indiana State Science Standards
Compiled by:

Nancy Leininger
Karin Huttzell
Jennifer Lowe

Project WET correlations to the Indiana State Science Standards

Final copy design by:

Pat Cooper
Jen Smidebush

Under the direction of
Indiana Project WET Coordinator
Susan M. Schultz

Funded by :
LARE
Lake and River Enhancement / DNR

Final copy
May 2004

Reprint with permission from:

Indiana Project WET
317-562-0788
projectwet@dnr.IN.gov

Natural Resources Education Center
Fort Harrison State Park
5785 Glenn Road
Indianapolis, IN 46216-1066

www.projectwet.in.gov

Project WET Activities correlated to the Indiana State Science Standards

Page	Project WET Activity
3	Check It Out! Explore a variety of performance assessment strategies
7	Idea Pools Become familiar with pre-assessment strategies
9	Let's Work Together Use cooperative learning strategies
12	Water Action Propose, analyze, and implement action strategies
19	Water Log Assess student learning through a journal of portfolio
25	Adventures in Density Experiment with density and explore examples of density in classic literature
30	H₂Olympics Compete in a water Olympics to investigate adhesion and cohesion
35	Hangin' Together Mimic hydrogen bonding in surface tension, ice formation, evaporation, ad solutions
43	Is There Water on Zork? Test the properties of water
47	Molecule in Motion Simulate molecular movement in water's three states
50	Water Match Match water picture cards and discover the three states of water
54	What's the Solution Solve a crime while investigating the dissolving power of water
63	Aqua Bodies Estimate the amount of water in a person, a cactus, or a whale
66	Aqua Notes Sing to discover how the human body uses water
72	Let's Even Things Out Demonstrate osmosis and diffusion
76	Life Box (The) Discover the elements essential to life
79	Life in the Fast Lane Explore Temporary wetlands
85	No Bellyachers Show how pathogens are transmitted by water by playing a game of tag
89	People of the Bog Construct a classroom bog
93	Poison Pump Solve a mystery about a waterborne disease
99	Salt Marsh Players Role-play organisms adapted to life in a salt marsh
107	Super Sleuths Search for others who share similar symptoms of a waterborne disease
116	Thirsty Plants Demonstrate transpiration and conduct a field study
122	Water Address Analyze clues to match organisms with water-related adaptations
129	Branching Out! Construct a watershed model
133	Capture, Store, and Release Use a household sponge to demonstrate how wetlands get wet and how they contribute to a watershed
136	Get the Ground Water Picture Create an "earth window" to investigate ground water systems
144	Geyser Guts Demonstrate the workings of a geyser
150	Great Stony book (The) Create layers of buried fossils and read a great stony book
155	House of Seasons (A) Create a collage that peeks through a "window" to reveal the role of water in each season
157	Imagine! Imagine a water molecule on its water journey

161	Incredible Journey (The) Simulate the movement of water through Earth's systems
166	Just Passing Through Mimic the movement of water down a slope
171	Old Water Create a mural that relates events to the age of Earth, water, and life
Page	Project WET Activity
174	Piece It Together Explore global climates and their influence on lifestyles
182	Poetic Precipitation Simulate cloud formation and express feelings toward precipitation through poetry
186	Rainy -Day Hike Explore schoolyard topography and its effect on the watershed
191	Stream Sense Develop sensory awareness of a stream
196	Thunderstorm (The) Simulate the sounds of thunderstorm and create precipitation maps
201	Water Models Construct models of the water cycle and adapt them for different biomes
206	Wet Vacation Plot data to determine weather patterns and design appealing travel brochures
212	Wetland Soils in Living Color Classify soil types using a simple color key
219	A-maze-ing Water Negotiate a maze to investigate nonpoint source pollution
223	Color Me a Watershed Interpret maps to analyze changes in a watershed
232	Common Water Demonstrate that water is a shared resource
238	Drop in the Bucket (A) Calculate the availability of fresh water on Earth
242	Energetic Water Design devices to make water do work
246	Great Water Journeys Use clues to track great water journey of plants, people, and other animals on a map
254	Irrigation Interpretation Model different irrigation systems
260	Long Haul (The) Haul water to appreciate the amount of water used daily
262	Nature Rules! Write news stories based on natural, water-related disasters
267	Sum of the Parts Demonstrate nonpoint source pollution
271	Water Meter Construct a water meter and keep track of personal water use
274	Water Works Create a web of water users
279	Where Are the Frogs Run a simulation and experiment to understand the effects of acid rain
289	AfterMath Assess economic effects of water-related disasters
293	Back to the Future Analyze streamflow data to predict floods and water shortages
300	CEO (The) Become a Chief executive Officer (CEO) and learn about business/corporate water management challenges
303	Dust Bowls and Failed Levees Witness, through literature, the effects of drought and flood on human populations
307	Every Drop Counts Identify and implement water conservation habits
311	Grave Mistake (A) Analyze data to solve a ground water mystery
316	Humpty Dumpty Simulate a restoration project by putting the pieces of an ecosystem back together
322	Macroinvertebrate Mayhem Illustrate, through a game of tag, how macroinvertebrate populations indicate water quality
328	Money Down the Drain Observe and calculate water waste from a dripping faucet
333	Price is Right (The) Analyze costs for building a water development project

338	Pucker Effect (The) Simulate ground water testing to discover the source of contamination
344	Reaching Your Limits "Limbo" to learn basic water quality concepts and standards development
348	Sparkling Water Develop strategies to clean wastewater
353	Super Bowl Surge Develop a strategy to accommodate the demands on a wastewater treatment plant
Page	Project WET Activity
360	Wet-Work Shuffle Sequence the water careers involved in getting water to and from the home
367	Choices and Preferences, Water Index Develop a "water index" to rank water uses
373	Cold Cash in the Icebox Create a mini-insulator to prevent an ice cube from melting
377	Dilemma Derby Examine differing values in resolving water resource management dilemmas
382	Easy Street Compare quantities of water used in the late 1800s to the present
388	Hot Water Debate water issues
392	Pass the Jug Simulate water rights policies with a "jug" of water
397	Perspectives Identify values to solve water management issues
400	Water: Read All About It! Develop a Special Edition on water
403	Water Bill of Rights Create a document to guarantee the right to clean and sustainable water resources
407	Water Concentration Play concentration and discover how water use practices evolve
413	Water Court Participate in a mock court to settle water quality and quantity disputes
421	Water Crossings Simulate a water crossing and relate the historical significance of waterways
425	What's Happening? Conduct a community water use survey
429	Whose Problem Is It? Analyze the scope and duration of water issues to determine personal and global significance
435	Raining Cats and Dogs Discover how water proverbs vary among culture and climates
442	Rainstick (The) Build an instrument that imitates the sound of rain
446	Water Celebration Organize a water celebration with activities from this guide
450	wAteR in motion Create artwork that simulates the movement and sound of water in nature
454	Water Message in Stone Replicate ancient rock art, creating symbols of water
457	Water Write Explore feelings about and perception of water topics through writing exercises
460	Wish Book Compare recreational uses of water in the late 1800s and the present

Ninth thru Twelfth Grade

	Earth & Space	Biology	Chemistry	Chemistry Physics	Environment	Physics
ACTIVITY						
Adventures in Density (25)		B.1.43 B.1.44 B.1.45	C.1.2 C.1.41		ENV 1.10 ENV 1.14 ENV 1.33	P.1.2
Back to the Future (293)		B.1.39			ENV 1.2	
The CEO (300)		B.1.41			ENV 1.4 ENV 1.27 ENV 1.31 ENV 1.34	
Choices & Preferences (367)		B.1.37 B.1.41			ENV 1.4 ENV 1.14 ENV1.27	
Color Me a Watershed (223)	ES.1.20 ES.1.21 ES.1.25 ES.1.26	B.1.37 B.1.41			ENV 1.10 ENV 1.14 ENV 1.4	
Dilemma Derby (377)	ES.1.25	B.1.37 B.1.38 B.1.41			ENV 1.14 ENV 1.27 ENV 1.28 ENV 1.33 ENV 1.4	
A Drop in the Bucket (238)		B.1.37			ENV 1.14	
Dust Bowls (303)		B.1.37 B.1.39			ENV 1.14 ENV 1.2	
Easy Street (382)		B.1.37 B.1.43			ENV 1.14	
Get the Ground Water (136)	ES.1.19 ES.1.20 ES.1.21	B.1.44		CP 1.23	ENV 1.31	P.1.11
A Grave Mistake (311)		B.1.41 B.1.44			ENV 1.30 ENV 1.31 ENV 1.34 ENV 1.35 ENV 1.4	
Great Water Journeys (246)	ES.1.25	B.1.38 B.1.41 B.1.44			ENV 1.4	
Hangin' Together (35)			C.1.36 C.1.41	CP 1.1 CP 1.11 CP 1.16 CP 1.17 CP 1.29 CP1.5		
Is there Water on Zork? (43)			C.1.1 C.1.11 C.1.2 C.1.26 C.1.27 C.1.3 C.1.8	CP 1.4 CP 1.5		P.1.2 P.1.4

	Earth & Space	Biology	Chemistry	Chemistry Physics	Environment	Physics
ACTIVITY						
Let's Even Things Out (72)		B.1.2 B.1.16 B.1.17	C.1.26 C.1.7	CP 1.11 CP 1.5		
Life in the Fast Lane (79)		B.1.37 B.1.45			ENV 1.10 ENV 1.14 ENV 1.20 ENV 1.4	P.1.2 P.1.4
The Long Haul (260)					ENV 1.28	
Nature Rules! (262)	ES.1.16				ENV 1.33	
Pass the Jug (392)	ES.1.21	B.1.41			ENV 1.4	
People of the Bog (89)		B.1.37 B.1.41 B.1.42 B.1.44 B.1.45			ENV 1.10 ENV 1.11 ENV 1.13 ENV 1.14 ENV 1.4	
Perspectives (397)		B.1.41			ENV 1.4	
The Price is Right (333)		B.1.37 B.1.41			ENV 1.14 ENV 1.26 ENV 1.27 ENV 1.31 ENV 1.4 ENV 1.6	
The Pucker Effect (338)		B.1.37 B.1.41	C.1.2		ENV 1.14 ENV 1.29 ENV 1.31 ENV 1.4 ENV 1.6	
Sparkling Water (348)		B.1.37 B.1.41 B.1.43 B.1.44 B.1.45	C.1.2		ENV 1.14 ENV 1.28 ENV 1.31 ENV 1.34 ENV 1.4	
Super Bowl Surge (353)		B.1.37 B.1.42			ENV 1.10 ENV 1.14 ENV 1.26 ENV 1.27 ENV 1.29 ENV 1.31 ENV 1.34 ENV 1.4	
Super Sleuths (107)		B.1.20 B.1.41			ENV 1.10 ENV 1.31 ENV 1.34 ENV 1.4	
The Thundestorm (196)	ES.1.15				ENV 1.33	
Water Actions (12)		B.1.41			ENV 1.4	

Water Address (122)		B.1.37 B.1.43 B.1.45			ENV 1.10 ENV 1.14	
Water Bill of Rights (403)		B.1.41			ENV 1.4	
Water Court (413)		B.1.41			ENV 1.29 ENV 1.31 ENV 1.4	
Wet-Work Shuffle (360)		B.1.41			ENV 1.31 ENV 1.4	
	Earth & Space	Biology	Chemistry	Chemistry Physics	Environment	Physics
ACTIVITY						
Whose Problem Is It? (429)		B.1.37 B.1.41			ENV 1.14 ENV 1.4	
Wet Vacation	ES.1.17		C.1.2			P.1.2

Standard 1

Principles of Biology

Students work with the concepts, principles, and theories that enable them to understand the living environment. They recognize that living organisms are made of cells or cell products that consist of the same components as all other matter, involve the same kinds of transformations of energy, and move using the same kinds of basic forces. Students investigate, through laboratories and fieldwork, how living things function and how they interact with one another and their environment.

Molecules and Cells

- B.1.12 Compare and contrast the form and function of prokaryotic and eukaryotic cells.

WET Activities (page): 72

- B.1.16 Explain how higher levels of organization result from specific complexing and interactions of smaller units and that their maintenance requires a constant input of energy as well as new material.

WET Activities (page): 72

- B.1.17 Understand that and describe how the maintenance of a relatively stable internal environment is required for the continuation of life and explain how stability is challenged by changing physical, chemical, and environmental conditions, as well as the presence of disease agents.

WET Activities (page): 72

- B.1.20 Recognize that and describe how the human immune system is designed to protect against microscopic organisms and foreign substances that enter from outside the body and against some cancer cells that arise within.

WET Activities (page): 107

Ecology

- B.1.37 Explain that the amount of life any environment can support is limited by the available energy, water, oxygen, and minerals, and by the ability of ecosystems to recycle the residue of dead organic materials. Recognize, therefore, that human activities and technology can change the flow and reduce the fertility of the land.

WET Activities (page): 79, 89, 122, 223, 238, 303, 333, 338, 348, 353, 367, 377, 382, 425, 429

- B.1.38 Understand and explain the significance of the introduction of species, such as zebra mussels, into American waterways, and describe the consequent harm to native species and the environment in general.

WET Activities (page): 246, 377

- B.1.39 Describe how ecosystems can be reasonably stable over hundreds or thousands of years. Understand that if a disaster such as flood or fire occurs, the damaged ecosystem is likely to recover in stages that eventually result in a system similar to the original one.

WET Activities (page): 293, 303,

- B.1.40 Understand and explain that like many complex systems, ecosystems tend to have cyclic fluctuations around a state of rough equilibrium. However, also understand that ecosystems can always change with climate changes or when one or more new species appear as a result of migration or local evolution.

WET Activities (page): 212

- B.1.41 Recognize that and describe how human beings are part of Earth's ecosystems. Note that human activities can, deliberately or inadvertently, alter the equilibrium in ecosystems.

WET Activities (page): 12, 89, 107, 223, 246, 300, 311, 333, 338, 348, 360, 367, 377, 392, 397, 403, 413, 425, 429

- B.1.42 Realize and explain that at times, the environmental conditions are such that plants and marine organisms grow faster than decomposers can recycle them back to the environment. Understand that layers of energy-rich organic material thus laid down have been gradually turned into great coal beds and oil pools by the pressure of the overlying earth. Further understand that by burning these fossil fuels, people are passing most of the stored energy back into the environment as heat and releasing large amounts of carbon dioxide.

WET Activities (page): 89, 353

- B.1.43 Understand that and describe how organisms are influenced by a particular combination of living and non-living components of the environment.

WET Activities (page): 25, 122, 348, 382

- B.1.44 Describe the flow of matter, nutrients, and energy within ecosystems.

WET Activities (page): 25, 89, 136, 212, 246, 311, 348

- B.1.45 Recognize that and describe how the physical or chemical environment may influence the rate, extent, and nature of the way organisms develop within ecosystems.

WET Activities (page): 25, 79, 89, 122, 348

Principles of Chemistry

Students begin to conceptualize the general structure of the atom and the roles played by the main parts of the atom in determining the properties of materials. They investigate, through such methods as laboratory work, the nature of chemical changes and the role of energy in those changes.

Properties of Matter

- C.1.1 Differentiate between pure substances and mixtures based on physical properties such as density, melting point, boiling point, and solubility.

WET Activities (page): 43

- C.1.2 Determine the properties and quantities of matter such as mass, volume, temperature, density, melting point, boiling point, conductivity, solubility, color, numbers of moles, and pH (calculate pH from the hydrogen-ion concentration), and designate these properties as either extensive or intensive.

WET Activities (page): 25, 43, 206, 212, 38, 348

- C.1.3 Recognize indicators of chemical changes such as temperature change, the production of a gas, the production of a precipitate, or a color change.

WET Activities (page): 43

- C.1.7 Use appropriate nomenclature when naming compounds.

WET Activities (page): 72

- C.1.8 Use formulas and laboratory investigations to classify substances as metal or nonmetal, ionic or molecular, acid or base, and organic or inorganic.

WET Activities (page): 43

The Nature of Chemical Change

- C.1.11 Predict products of simple reaction types including acid/base, electron transfer, and precipitation.

WET Activities (page): 43

The Structure of Matter

- C.1.26 Describe physical changes and properties of matter through sketches and descriptions of the involved materials.

WET Activities (page): 43, 72

- C.1.27 Describe chemical changes and reactions using sketches and descriptions of the reactants and products.

WET Activities (page): 43

- C.1.36 Describe the nature of ionic, covalent, and hydrogen bonds, and give examples of how they contribute to the formation of various types of compounds.

WET Activities (page): 35

The Nature of Energy and Change

- C.1.41 Describe the role of light, heat, and electrical energies in physical, chemical, and nuclear changes.

WET Activities (page): 25,35

Standard 1

Principles of Earth and Space Science

Students investigate, through laboratory and fieldwork, the universe, Earth, and the processes that shape Earth. They understand that Earth operates as a collection of interconnected systems that may be changing or may be in equilibrium. Students connect the concepts of energy, matter, conservation, and gravitation to Earth, solar system, and universe. Students utilize knowledge of the materials and processes of Earth, planets, and stars in the context of the scales of time and size.

The Earth

ES.1.15 Understand and describe the origin, life cycle, behavior, and prediction of weather systems.

WET Activities (page): 196,

ES.1.16 Investigate the causes of severe weather, and propose appropriate safety measures that can be taken in the event of severe weather.

WET Activities (page): 262

ES.1.17 Describe the development and dynamics of climatic changes over time, such as the cycles of glaciation.

WET Activities (page): 206

ES.1.19 Identify and discuss the effects of gravity on the waters of Earth. Include both the flow of streams and the movement of tides.

WET Activities (page): 136

ES.1.20 Describe the relationship among ground water, surface water, and glacial systems.

WET Activities (page): 136, 223,

ES.1.21 Identify the various processes that are involved in the water cycle.

WET Activities (page): 136, 223, 392

Processes That Shape the Earth

ES.1.25 Investigate and discuss the origin of various landforms, such as mountains and rivers, and how they affect and are affected by human activities.

WET Activities (page): 223, 246, 377

ES.1.26 Differentiate among the processes of weathering, erosion, transportation of materials, deposition, and soil formation.

WET Activities (page): 223

Standard 1

Principles of Environmental Science

Students investigate, through laboratory and fieldwork, the concepts of environmental systems, populations, natural resources, and environmental hazards.

Environmental Systems

Env.1.2 Understand and describe that if a disaster such as flood or fire occurs, the damaged ecosystem is likely to recover in stages that eventually result in a system similar to the original one.

WET Activities (page): 293, 303

Env.1.3 Understand and explain that ecosystems have cyclic fluctuations such as seasonal changes or changes in population, as a result of migrations.

WET Activities (page): 212

Env.1.4 Understand and explain that human beings are part of Earth's ecosystems, and give examples of how human activities can, deliberately or inadvertently, alter ecosystems.

WET Activities (page): 12, 79, 89, 107, 223, 246, 300, 311, 333, 338, 348, 353, 360, 367, 377, 392, 397, 403, 413, 425, 429

Env.1.7 Recognize and explain that in evolutionary change, the present arises from the materials of the past and in ways that can be explained, such as the formation of soil from rocks and dead organic matter.

WET Activities (page): 212

Env.1.10 Identify and measure biological, chemical, and physical factors within an ecosystem.

WET Activities (page): 25, 79, 89, 107, 122, 212, 223, 353

Env.1.11 Locate, identify, and explain the role of the major earth biomes and discuss how the abiotic and biotic factors interact within these ecosystems.

WET Activities (page): 89

Flow of Matter and Energy

Env.1.13 Understand and describe how layers of energy-rich organic material have been gradually turned into great coal beds and oil pools by the pressure of the overlying earth. Recognize that by burning these fossil fuels, people are passing stored energy back into the environment as heat and releasing large amounts of carbon dioxide.

WET Activities (page): 89

Env.1.14 Recognize and explain that the amount of life any environment can support is limited by the available energy, water, oxygen, and minerals, and by the ability of ecosystems to recycle organic materials from the remains of dead organisms.
WET Activities (page): 25, 79, 89, 122, 223, 238, 303, 333, 338, 348, 353, 367, 377, 382, 425, 429

Populations

Env.1.20 Demonstrate how resources, such as food supply, influence populations.
WET Activities (page): 79

Natural Resources

Env.1.26 Identify specific tools and technologies used to adapt and alter environments and natural resources in order to meet human physical and cultural needs.

WET Activities (page): 333, 353

Env.1.27 Understand and describe the concept of integrated natural resource management and the values of managing natural resources as an ecological unit.

WET Activities (page): 300, 333, 353, 367, 377

Env.1.28 Understand and describe the concept and the importance of natural and human recycling in conserving our natural resources.

WET Activities (page): 260, 348, 377

Env.1.29 Recognize and describe important environmental legislation, such as the Clean Air Act and the Clean Water Act.

WET Activities (page): 338, 353, 413

Environmental Hazards

Env.1.30 Describe how agricultural technology requires trade-offs between increased production and environmental harm and between efficient production and social values.

WET Activities (page): 311

Env.1.31 Understand and explain that waste management includes considerations of quantity, safety, degradability, and cost. Understand also that waste management requires social and technological innovations because waste-disposal problems are political and economic as well as technical.

WET Activities (page): 107, 136, 300, 311, 333, 338, 348, 360, 413

Env.1.33 Identify natural Earth hazards, such as earthquakes and hurricanes, and identify the regions in which they occur as well as the short-term and long-term effects on the environment and on people.

WET Activities (page): 25, 196, 262, 300, 348, 377

Env.1.34 Differentiate between natural pollution and pollution caused by humans and give examples of each.

WET Activities (page): 107, 311, 348, 353,

Env.1.35 Compare and contrast the beneficial and harmful effects of an environmental stressor, such as herbicides and pesticides, on plants and animals. Give examples of secondary effects on other environmental components.

WET Activities (page): 311

Standard 2

Historical Perspectives of Environmental Science

Students gain understanding of how the scientific enterprise operates through examples of historical events. Through the study of these events, they understand that new ideas are limited by the context in which they are conceived, are often rejected by the scientific establishment, sometimes spring from unexpected findings, and grow or transform slowly through the contributions of many different investigators.

Env.2.1 Explain that Rachael Carson's book, *Silent Spring*, explained how pesticides were causing serious pollution and killing many organisms. Understand that it was the first time anyone had publicly shown how poisons affect anything in nature. Note in particular that the book detailed how the pesticide DDT had gotten into the food chain. Understand that as a result of *Silent Spring*, there are now hundreds of national, state, and local laws that regulate pesticides.

Env.2.2 Explain that Henry Cowles found the Indiana Dunes and Lake Michigan shoreline area a natural laboratory for developing important principles of plant succession.

Standard 1

Principles of Integrated Chemistry – Physics

Students begin to conceptualize the general architecture of the atom and the roles played by the main constituents of the atom in determining the properties of materials. They investigate, using such methods as laboratory work, the different properties of matter. They investigate the concepts of relative motion, the action/reaction principle, wave behavior, and the interaction of matter and energy.

Structure and Properties of Matter

- CP.1.1 Understand and explain that atoms have a positive nucleus (consisting of relatively massive positive protons and neutral neutrons) surrounded by negative electrons of much smaller mass, some of which may be lost, gained, or shared when interacting with other atoms.

WET Activities (page): 35

- CP.1.4 Know and explain that physical properties can be used to differentiate among pure substances, solutions, and heterogeneous mixtures.

WET Activities (page): 43

Changes in Matter

- CP.1.5 Distinguish among chemical and physical changes in matter by identifying characteristics of these changes.

WET Activities (page): 35, 43, 72

- CP.1.11 Understand and give examples to show that an enormous variety of biological, chemical, and physical phenomena can be explained by changes in the arrangement and motion of atoms and molecules.

WET Activities (page): 35, 72

Energy Transformations

- CP.1.16 Explain that heat energy in a material consists of the disordered motions of its atoms or molecules.

WET Activities (page): 35

- CP.1.17 Know and explain that transformations of energy usually transform some energy into the form of heat, which dissipates by radiation or conduction into cooler surroundings.

WET Activities (page): 35

Motion

- CP.1.23 Understand and explain that the motion of an object is described by its position, velocity, and acceleration.

WET Activities (page): 136

Forces of Nature

CP.1.29 Understand and explain that at the atomic level, electric forces between oppositely charged electrons and protons hold atoms and molecules together and thus, are involved in all chemical reactions.

WET Activities (page): 35

Standard 1

Principles of Physics

Students recognize the nature and scope of physics, including its relationship to other sciences and its ability to describe the natural world. Students learn how physics describes the natural world, using quantities such as velocity, acceleration, force, energy, momentum, and charge. Through experimentation and analysis, students develop skills that enable them to understand the physical environment. They learn to make predictions about natural phenomena by using physical laws to calculate or estimate these quantities. Students learn that this description of nature can be applied to diverse phenomena at scales ranging from the subatomic to the structure of the universe and include everyday events. Students learn how the ideas they study in physics can be used in concert with the ideas of the other sciences. They also learn how physics can help to promote new technologies. Students will be able to communicate what they have learned orally, mathematically, using diagrams, and in writing.

The Properties of Matter

- P.1.2 Measure or determine the physical quantities including mass, charge, pressure, volume, temperature, and density of an object or unknown sample.

WET Activities (page): 25, 43, 79, 206

- P.1.4 Employ correct units in describing common physical quantities.

WET Activities (page): 43, 79

The Nature of Energy

- P.1.11 Recognize energy in its different manifestations such as kinetic ($KE = \frac{1}{2}mv^2$), gravitational potential ($PE = mgh$), thermal, chemical, nuclear, electromagnetic, or mechanical.

WET Activities (page): 136